

PATENT  
Docket No.: 28111/32729E

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

1C918 U.S. PRO  
09/706507  
11/03/00

**INFORMATION DISCLOSURE STATEMENT**  
**WITH FORM PTO-1449**

Commissioner for Patents  
Washington, D.C. 20231

Dear Sir:

The Applicants request that the documents listed on the attached Form PTO-1449 be made of official record in the above-identified application and considered by the Examiner. The enclosed documents were disclosed in the text of the specification and are now being listed in PTO Form 1449 to ensure that a record is made that they have been considered. Pursuant to 37 C.F.R. §1.98(d), copies of documents A1-A16, B1-B17, C1-C119 are not enclosed because they were cited in one or more prior applications (U.S. Serial No. 09/417,479, filed October 13, 1999 and U.S. Serial No. 08/484,893, filed June 7, 1995 and U.S. Serial No. 07/971,857, filed January 8, 1993, now U.S. Patent No. 5,969,108 issued October 19, 1999) that is presently relied upon herein for an earlier filing.

date. Reference A17, Breitling *et al.* U.S. Patent No. 5,985,588 issued November 16, 1999 is herewith enclosed in accordance with 37 C.F.R. §1.98(a)(2)(i). However, copies of these documents will be resubmitted at the Examiner's request.

This Information Disclosure Statement is not intended to be an admission that a search has been made, that other relevant art does not exist, or that any of the information disclosed herein constitutes prior art under 35 U.S.C. §102 or §103.

This Information Disclosure Statement is submitted before receipt of a first Office action on the merits, and consequently should be considered by the Patent Office without payment of a fee. See 37 C.F.R. §1.97(b). However, please charge any necessary fees due in connection with this Information Disclosure Statement to Deposit Account No. 13-2855. A copy of this paper is enclosed herewith.

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November 3, 2000

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Form PTO-1449 (Modified)		U.S. Department of Commerce Patent and Trademark Office		Atty. Docket No. 28111/32729E	Serial No. to be assigned
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				Filing Date herewith	Group to be assigned

U.S. PATENT DOCUMENTS							
*Examiner Initials		Document Number	Issue Date	Name	Class	Subclass	Filing Date If Appropriate
	A1	4,593,002	06/03/86	Dulbecco	435	172.3	10
	A2	4,816,397	03/28/89	Boss <i>et al.</i>	435	68	
	A3	4,946,778	08/07/90	Ladner <i>et al.</i>	435	69.6	15/03/01
	A4	5,091,513	02/25/92	Huston <i>et al.</i>	530	387	JC919/09/06/01
	A5	5,223,409	06/29/93	Ladner <i>et al.</i>	435	69.7	
	A6	5,403,484	04/04/95	Ladner <i>et al.</i>	435	235.1	
	A7	5,427,908	06/27/95	Dower <i>et al.</i>	435	5	
	A8	5,658,727	08/19/97	Barbas <i>et al.</i>	435	6	
	A9	5,688,666	11/18/97	Bass <i>et al.</i>	435	69.4	
	A10	5,750,373	05/12/98	Garrard <i>et al.</i>	435	69.4	
	A11	5,759,817	06/02/98	Barbas, C.	435	69.7	
	A12	5,770,356	06/23/98	Light <i>et al.</i>	435	5	
	A13	5,780,279	07/14/98	Matthews <i>et al.</i>	435	172.3	
	A14	5,821,047	10/13/98	Garrard <i>et al.</i>	435	5	
	A15	5,846,765	12/08/98	Matthew <i>et al.</i>	435	69.1	
	A16	5,849,500	12/15/98	Breitling <i>et al.</i>	435		
	A17	5,985,588	11/16/99	Breitling <i>et al.</i>	435	7.8	

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FOREIGN PATENT DOCUMENTS							
*Examiner Initials		Document Number	Publication Date	Country	Class	Subclass	Translation
							Yes      No
	B1	WO 83/02393	07/21/83	WIPO			
	B2	EP 2 137 631	10/10/84	EP			
	B3	EP 0 168 933	01/22/86	EP			
	B4	WO 88/06630	09/07/88	WIPO			
	B5	WO 88/09344	12/01/88	WIPO			
	B6	EP 0 324 162 A1	12/24/88	EP			
	B7	AU-B-27617/88	07/06/89	AU			
	B8	WO 90/02809	03/22/90	WIPO			
	B9	WO 90/05144	05/17/90	WIPO			
	B10	WO 90/14424	11/29/90	WIPO			
	B11	WO 90/14430	11/29/90	WIPO			
	B12	WO 90/14443	11/29/90	WIPO			
	B13	WO 91/10737	07/25/91	WIPO			
	B14	WO 91/17271	11/14/91	WIPO			
	B15	WO 92/06204	04/16/92	WIPO			
	B16	WO 92/09690	06/11/92	WIPO			
	B17	WO 92/18619	10/29/92	WIPO			

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OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, etc.)			
C1	Amit, A.G. <i>et al.</i> , "Three-Dimensional Structure of an Antigen-Antibody Complex at 2.8 Å Resolution," <i>Science</i> , 233:747-753 (August, 1986).		
C2	Armstrong, J. <i>et al.</i> , "Domain Structure of Bacteriophage fd Adsorption Protein," <i>FEBS Lett.</i> , 135(1):167-172 (November, 1981).		
C3	Bass <i>et al.</i> , "Hormone Phage: An Enrichment Method for Variant Proteins With Altered Binding Properties," <i>Proteins: Structure, Function and Genetics</i> , 8:309-314 (1990).		
C4	Beck, E. <i>et al.</i> , "Nucleotide sequence and genome organisation of filamentous bacteriophages f1 and fd," <i>Gene</i> , 16:35-58 (1981).		
C5	Beck, E. <i>et al.</i> , "Nucleotide sequence of bacteriophage fd DNA," <i>Nucleic Acids Research</i> , 5(12):4495-4503 (1978).		
C6	Berek, C. <i>et al.</i> , "Molecular events during maturation of the immune response to oxazolone," <i>Nature</i> , 316:412-418 (August, 1985).		
C7	Better, M. <i>et al.</i> , "Escherichia coli Secretion of an Active Chimeric Antibody Fragment," <i>Science</i> , 240:1041-1043 (May, 1988).		
C8	Bhat, T.N. <i>et al.</i> , "Small rearrangements in structures of Fv and Fab fragments of antibody D1.3 on antigen binding," <i>Nature</i> , 347:483-485 (October, 1990).		
C9	Bird, R.E. <i>et al.</i> , "Single chain antibody variable regions," <i>TIBTECH</i> , 9:132-137 (April, 1991).		
C10	Bird, R.E. <i>et al.</i> , "Single-Chain Antigen-Binding Proteins," <i>Science</i> , 242:423-426 (October, 1988).		
C11	Boeke, J.D. <i>et al.</i> , "Effects of Bacteriophage f1 Gene III Protein on the Host Cell Membrane," <i>Mol. Gen. Genet.</i> , 186:185-192 (1982).		
C12	Boyle, W., "An Extension of the <sup>51</sup> Cr-Release Assay for the Estimation of Mouse Cytotoxins," <i>Transplantation</i> , 6(6):761-764 (1968).		
C13	Branden, C. <i>et al.</i> , in <i>Introduction to Protein Structure</i> , Garland Publishing, Inc., New York and London, pp.26-29 (1991).		
C14	Brenna, O. <i>et al.</i> , "Affinity-Chromatography Purification of Alkaline Phosphatase from Calf Intestine," <i>Biochem. J.</i> , 151:291-296 (1975).		

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	C15	Brownstone, A. et al., "Biological Studies with an Iodine-Containing Synthetic Immunological Determinant 4-Hydroxy-3-iodo-5-nitrophenylacetic Acid (NIP) and Related Compounds," <i>Immunology</i> , 10:481-492 (1966)	
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	C17	Carter, P. et al., "Improved oligonucleotide site-directed mutagenesis using M13 vectors" <i>Nucl. Acids Res.</i> , 13(12):4431-4443 (1985).	
	C18	Casali, P. et al., "Human Monoclonals from Antigen-Specific Selection of B Lymphocytes and Transformation by EBV," <i>Science</i> , 234:476-479 (October, 1986).	
	C19	Chaidaroglou, A. et al., "Function of Arginine-166 in the Active Site of <i>Escherichia coli</i> Alkaline Phosphatase," <i>Biochemistry</i> , 27:8338-8343 (1988).	
	C20	Chang, C. N. et al., "Nucleotide sequence of the alkaline phosphatase gene of <i>Escherichia coli</i> ," <i>Gene</i> , 44:121-125 (1986).	
	C21	Chaudhary, V.K. et al., "A rapid method of cloning functional variable-region antibody genes in <i>Escherichia coli</i> as single-chain immunotoxins," <i>Proc. Natl. Acad. Sci., USA</i> , 87:1066-1070 (February, 1990).	
	C22	Chiang, Y.L. et al., "Direct cDNA Cloning of the Rearranged Immunoglobulin Variable Region," <i>BioTechniques</i> , 7(4):360-366 (1989).	
	C23	Choo, Y. et al., "In vivo repression by a site-specific DNA-binding protein designed against an oncogenic sequence," <i>Nature</i> , 372:642-645 (1994).	
	C24	Choo, Y. et al., "Selection of DNA binding sites for zinc fingers using rationally randomized DNA reveals coded interactions," <i>Proc. Natl. Acad. Sci., USA</i> , 91:11168-11172 (1994).	
	C25	Choo Y. et al., "Toward a code for the interactions of zinc fingers with DNA: Selection of randomized fingers displayed on phage," <i>Proc. Natl. Acad. Sci., USA</i> , 91:11163-11167 (1994).	
	C26	Chothia, C. et al., "Canonical Structures for the Hypervariable Regions of Immunoglobulins," <i>J. Mol. Biol.</i> , 196:901-917 (1987).	

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OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, etc.)			
	C27	Chuchana, P. et al., "Definition of the human immunoglobulin variable lambda (IGLV) gene subgroups," <i>Eur. J. Immunol.</i> , 20:1317-1325 (1990).	
	C28	Clackson, T. et al., "'Sticky feet'-directed mutagenesis and its application to swapping antibody domains," <i>Nucl. Acids Res.</i> , 17(24):10163-10170 (1989).	
	C29	Cunningham, C. et al., "Antibody engineering - how to be human," <i>Trends Biotechnology</i> , 10(4):112-113 (April, 1992).	
	C30	Curti, B.D., "Physical Barriers to drug delivery in tumors," <i>Critical Reviews in Oncology/Hematology</i> , 14:29-39 (1993).	
	C31	Cwirla, S.E. et al., "Peptides on phage: A vast library of peptides for identifying ligands," <i>Proc. Natl. Acad. Sci., USA</i> , 87:6378-6382 (1990).	
	C32	De Bellis, D. et al., "Regulated expression of foreign genes fused to lac: control by glucose levels in growth medium," <i>Nucl. Acids Res.</i> , 18(5):1311 (1980).	
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	C34	Dildrop, R., "A new classification of mouse V <sub>H</sub> sequences," <i>Immunol. Today</i> , 5(4):85-86 (1984).	
	C35	Dillman, R.O., "Monoclonal Antibodies for Treating Cancer," <i>Annals of Internal Medicine</i> , 111:592-603 (1989).	
	C36	Dower, W.J. et al., "High efficiency transformation of <i>E. coli</i> by high voltage electroporation," <i>Nucl. Acids Res.</i> , 16(13):6127-6145 (1988).	
	C37	Eckert, K.A. et al., "High fidelity DNA synthesis by the <i>Thermus aquaticus</i> DNA polymerase," <i>Nucl. Acids Res.</i> , 18(13):3739-3744 (1990).	
	C38	Eisen, H.N., "Determination of Antibody Affinity For Haptens and Antigens by Means of Fluorescence Quenching," <i>Meth. Med. Res.</i> , 10:115-121 (1964).	
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	C40	Fikes, J.D. et al., "Maturation of <i>Escherichia coli</i> Maltose-binding Protein by Signal Peptidase I in Vivo," <i>J. Biological Chemistry</i> , 265(6):3417-3423 (1990).	

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C41	Galfrè, G. et al., "Preparation of Monoclonal Antibodies: Strategies and Procedures," <i>Methods Enzymology</i> , 73:3-46 (1981).		
C42	Gherardi, E. et al., "A single-step procedure for cloning and selection of antibody-secreting hybridomas," <i>J. Immunol. Methods</i> , 126:61-68 (1990).		
C43	Glockshuber, R. et al., "The Disulfide Bonds in Antibody Variable Domains: Effects on Stability, Folding in Vitro, and Functional Expression in <i>Escherichia coli</i> ," <i>Biochemistry</i> , 31:1270-1279 (1992).		
C44	Goldstein, G., "Overview of the Development of ORTHOCLONE OKT3: Monoclonal Antibody for Therapeutic Use in Transplantation," <i>Transplantation Proceedings</i> , Vol. XIX, No. 2, Suppl. 1:1-6 (April, 1987).		
C45	Gorick, B.D. et al., "Three Epitopes on the Human Rh Antigen D Recognized by <sup>125</sup> I-Labelled Human Monoclonal IgG Antibodies," <i>Vox. Sang.</i> , 55:165-170 (1988).		
C46	Gottesman, M.E. et al., "Transcription Antitermination by Bacteriophage Lambda N Gene Product," <i>J. Mol. Biol.</i> , 140:57-75 (1980).		
C47	Grant, R.A. et al., "Structure of the Filamentous Bacteriophage f1," <i>J. Biol. Chem.</i> , 256(1):539-546 (January, 1981).		
C48	Griffiths, G.M. et al., "Somatic mutation and the maturation of immune response to 2-phenyl oxazolone," <i>Nature</i> , 312:271-275 (1984).		
C49	Gronwald, R.G.K. et al., "Cloning and expression of a cDNA coding for the human platelet-derived growth factor receptor: Evidence for more than one receptor class," <i>Proc. Natl. Acad. Sci., USA</i> , 85:3435-3439 (May, 1988).		
C50	Harper, M. et al., "Antigen Specificity and Cross-Reactivity of Monoclonal Anti-Lysozyme Antibodies," <i>Molec. Immunol.</i> , 24(2):97-108 (1987).		
C51	Harris, W.J. et al., "Therapeutic antibodies - the coming of age," <i>Trends Biotechnology</i> , 11:42-44 (February, 1993).		
C52	Hird, V. et al., "Immunotherapy with Monoclonal Antibodies," in <i>Genes and Cancer</i> , Edited by D. Carney and K. Sikora, John Wiley & Sons, Ltd., pp.183-189 (1990).		
C53	Horton, R.M. et al., "Engineering hybrid genes without the use of restriction enzymes: gene splicing by overlap extension," <i>Gene</i> , 77:61-68 (1989).		

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OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, etc.)		
C54	Hughes-Jones, N.C. <i>et al.</i> , "Nucleotide sequences and three-dimensional modelling of the V <sub>H</sub> and V <sub>L</sub> domains of two human monoclonal antibodies specific for the D antigen of the human Rh-blood-group system," <i>Biochem. J.</i> , 268:135-140 (1990).	
C55	Hull, W.E. <i>et al.</i> , " <sup>31</sup> P Nuclear Magnetic Resonance Study of Alkaline Phosphatase: The Role of Inorganic Phosphate in Limiting the Enzyme Turnover Rate at Alkaline pH," <i>Biochemistry</i> , 15(7):1547-1561 (1976).	
C56	Huse <i>et al.</i> , "Generation of a Large Combinatorial Library of the Immunoglobulin Repertoire in Phage Lambda," <i>Science</i> , 246:1275-1281 (1989).	
C57	Huston, J.S. <i>et al.</i> , "Protein engineering of antibody binding sites: Recovery of specific activity in an anti-digoxin single-chain Fv analogue produced in <i>Escherichia coli</i> ," <i>Proc. Natl. Acad. Sci., USA</i> , 85:5879-5883 (August, 1988).	
C58	Izard, J.W. <i>et al.</i> , "Signal peptides: exquisitely designed transport promoters," <i>Molecular Microbiology</i> , 13(5):765-773 (1994).	
C59	Kabat <i>et al.</i> , <i>Sequences of Proteins of Immunological Interest</i> , 5th ed. pgs.339, 362, 430, 451 and 1418 (1991).	
C60	Kabat <i>et al.</i> , <i>Sequences of Proteins of Immunological Interest</i> , 4th ed. p.181 (1987).	
C61	Kang, A.S. <i>et al.</i> , "Antibody redesign by chain shuffling from random combinatorial immunoglobulin libraries," <i>Proc. Natl. Acad. Sci., USA</i> , 88(24):1120-11123 (1991).	
C62	Kang, A.S. <i>et al.</i> , "Linkage of recognition and replication functions by assembling combinatorial antibody Fab libraries along phage surfaces," <i>Proc. Natl. Acad. Sci., USA</i> , 88(10):4363-4366 (1991).	
C63	Kettleborough, C.A. <i>et al.</i> , "Humanization of a mouse antibody by CDR-grafting: the importance of framework residues on loop conformation," <i>Protein Engineering</i> , 4(7):773-783 (1991).	
C64	Kim, Y. <i>et al.</i> , "Refinement of Eco RI Endonuclease Crystal Structure: A Revised Protein Chain Tracing," <i>Science</i> , 249:1307-1309 (1990).	
C65	Köhler, G. <i>et al.</i> , "Continuous cultures of fused cells secreting antibody of predefined specificity," <i>Nature</i> , 256:495-497 (August, 1975).	

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C66	Kornberg, A., <i>DNA Replication</i> , W.H. Freeman & Co., San Francisco, pp. 15, 20, 287, 385, 368-369, 383-385, 393, 461, 474, 478-496, 505-506 (1974).		
C67	Laforet, G.A. <i>et al.</i> , "Functional Limits of Conformation, Hydrophobicity, and Steric Constraints in Prokaryotic Signal Peptide Cleavage Regions," <i>J. Biological Chemistry</i> , 266(2):1326-1334 (1991).		
C68	Lerrick, J.W. <i>et al.</i> , "Rapid Cloning of Rearranged Immunoglobulin Genes from Human Hybridoma Cells Using Mixed Primers and the Polymerase Chain Reaction," <i>Biochem. Biophys. Res. Commun.</i> , 160(3):1250-1255 (May, 1989).		
C69	Lesk, A. M. <i>et al.</i> , "Elbow motion in the immunoglobulins involves a molecular ball-and-socket joint," <i>Nature</i> , 335:188-190 (September, 1988).		
C70	Mäkelä, O. <i>et al.</i> , "Inheritance of Antibody Specificity V Anti-2-Phenylloxazolone in the Mouse," <i>J. Exp. Med.</i> , 148:1644-1660 (December, 1978).		
C71	Malamy, M.H. <i>et al.</i> , "Purification and Crystallization of the Alkaline Phosphatase of <i>Escherichia coli</i> ," <i>Biochemistry</i> , 3(12):1893-1897 (December, 1964).		
C72	Marvin, D.A. <i>et al.</i> , "Molecular Models and Structural Comparisons of Native and Mutant Class I Filamentous Bacteriophages Ff m(fd, f1, M13), If1 and IKe," <i>J. Mol. Biol.</i> , 235:260-286 (1994).		
C73	McCafferty <i>et al.</i> , "Phage Antibodies: Filamentous Phage Displaying Antibody Variable Domains," <i>Nature</i> , 348:552-554 (1990).		
C74	McCracken, S. <i>et al.</i> , "Functional and Structural Properties of Immobilized Subunits of <i>Escherichia coli</i> Alkaline Phosphatase," <i>J. Biol. Chem.</i> , 255(6):2396-2404 (March, 1980).		
C75	Melamed, M.D. <i>et al.</i> , "Requirements for the establishment of heterohybridomas secreting monoclonal human antibody to rhesus (D) blood group antigen," <i>J. Immunological Methods</i> , 104:245-251 (1987).		
C76	Milstein F.R.S., C., "The Croonian Lecture, 1989 Antibodies: a paradigm for the biology of molecular recognition," <i>Proceedings of the Royal Society of London</i> , 239(1294):1-16 (1990)		

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